

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF NORTH CAROLINA  
WESTERN DIVISION  
No. 5:13-CV-633-BO

STATE OF NORTH CAROLINA,	)	
Plaintiff	)	
	)	
v.	)	<u>FINDINGS OF FACT AND</u>
	)	<u>CONCLUSIONS OF LAW</u>
	)	<u>AS TO NAVIGABILITY</u>
ALCOA POWER GENERATING, INC.,	)	
Defendant.	)	

Plaintiff, the State of North Carolina, instituted this civil action seeking a declaratory judgment that it owns the riverbed of a roughly 45-mile segment of the Yadkin River (the Relevant Segment) on which four of defendant Alcoa's hydroelectric dams sit. Until recently, Alcoa operated these facilities without title-based objection by North Carolina. The State was well aware of the facilities' existence on the riverbeds as various state agencies had participated in the federal licensing proceedings for these hydroelectric projects in the 1930s and 1950s. Following a 2013 proceeding in which the State allegedly learned that Alcoa claimed title to the riverbed, the State commenced this action. The State asserts that because the Relevant Segment was navigable at statehood, special property rules for determining title apply, while Alcoa asserts that the Relevant Segment was not navigable at statehood, and therefore regular property principles apply. Because navigability plays a key role in the progression of the case, the Court held a bench trial solely on the issue of whether the Relevant Segment was navigable-in-fact at the time of statehood on April 21–22, 2015, in Elizabeth City, North Carolina. After the close of evidence, the Court ruled from the bench that the Relevant Segment was non-navigable at statehood. In support of its ruling, the Court makes the following findings of fact and conclusions of law as to the Relevant Segment's non-navigability.

## FINDINGS OF FACT

If you were to travel down the Yadkin River today, you would begin on the eastern slope of the Blue Ridge Mountains in North Carolina, at the Yadkin's headwaters. You would then travel east out of the mountains before turning south where the Yadkin forms the border between Yadkin and Forsyth County. After the confluence of the Yadkin and the South Yadkin, you would travel roughly 20 miles before reaching a series of dams owned by Alcoa. From north to south, the dams are High Rock Dam, Tuckertown Dam, Narrows Dam, and Falls Dam. Just beyond Falls Dam, the Yadkin meets the Uwharrie and flows into the Pee Dee River. Continuing south on the Pee Dee, you would pass through Blewett Hydroelectric Plant and Tillery Hydroelectric Plant, both owned and operated by Duke Energy, down through Cheraw, South Carolina, and ultimately, to the Pee Dee's mouth at Winyah Bay, near Georgetown, South Carolina.

The parties stipulated that the relevant segment for purposes of navigability is the 45-river-mile segment of the historic riverbed lying between River Miles (RM) 233.1 and 279.7, with the mouth of the Pee Dee being RM 0. The Relevant Segment is in present day Stanly, Montgomery, Davidson, Rowan, and Davie Counties and encompasses all four of Alcoa's hydroelectric power facilities. The facilities were constructed in the 20th century. If you were to graph the turbulence of the Yadkin River prior to the dams' construction, however, the graph would loosely resemble a parabola, with the most turbulent point being from approximately RM 233.0 to 236.2, at what was historically known as the Falls and the Narrows (now the Falls and Narrows Dams).<sup>1</sup> Given the turbulence of the Falls and Narrows, it is perhaps unsurprising that absolutely no evidence was presented in support of the navigation of this portion of the Relevant

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<sup>1</sup> The Court acknowledges that the Yadkin's headwaters in the mountains would likely be more turbulent than its mouth at Winyah Bay; the Court merely uses the parabola metaphor to aid the reader in picturing the Yadkin, rather than as an ironclad depiction of the its flow.

Segment. The State conceded in closing argument and in its proposed findings of fact that neither the Falls nor the Narrows was ever navigated for purposes of commerce, nor were they susceptible to navigation for commerce.

1. Geography

In making its findings regarding the physical characteristics of Relevant Segment, the Court relies on the un rebutted testimony of Alcoa's fluvial geomorphologist, Dr. Michael Harvey. Dr. Harvey reviewed geological data, water flow and depth data, engineering and surveying records, photographs, and physical descriptions of the Relevant Segment in order to analyze its physical characteristics and geology and the corresponding effects on navigability at statehood.<sup>2</sup>

Generally speaking, the lower half of the Relevant Segment was more turbulent than the upper half. In its natural condition, RM 233.0 to 236.2 was characterized by the Narrows, which was a gorge that compressed 1000 feet of riverbed to a channel roughly 100 feet wide, creating whitewater and bedrock above the surface of the water. At the foot of the Narrows (RM 233.5 and 234.2) were two waterfalls, each with a roughly seven-foot plunge, known collectively as the Falls. The Narrows and Falls were widely recognized to be the most treacherous part of the Relevant Segment and a significant portion of the testimony and evidence related to these sections of the Relevant Segment. Above the Narrows were five named shoals which spanned from RM 237.5 to 254.4: Flat Swamp Mountain Shoal, Bald Mountain Shoal, Milledgeville Shoal, Pennington Shoal, and Bull Island/Beaver Shoals. Each shoal ranged in length from half a mile to slightly over two miles. Also above the Narrows was Motts Falls, which consisted of a

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<sup>2</sup> Dr. Harvey's testimony was based on scientific data of the Yadkin River up until 1917, when the first dam was built. The Court finds that the physical condition of the river did not change in any meaningful way between statehood and the completion of the Narrows Dam in 1917.

a 13.5 foot drop in 0.8 miles with six vertical falls over bedrock. These sections all were characterized by steep drops, bedrock outcrop, large boulders, sections of whitewater, and falls.

The entirety of the Relevant Segment lies within the Carolina Slate Belt, which represents the steepest profile of the Yadkin River. The riverbed is characterized by hard and erosion-resistant metavolcanic rocks and as well as less erosion-resistant metasedimentary rocks. The metavolcanic riverbed creates steep slopes, narrow valleys, rapids, falls, ledges, and exposed rock, which are present throughout the Relevant Segment, although they are more prevalent in the bottom half. The less erosion-resistant rocks create bedrock shoals and shallows, which are also present throughout the Relevant Segment, though again, more prevalent in the bottom half.

Rainfall also had a dramatic effect on the flow of the Relevant Segment. At statehood, flash floods (freshets) were unpredictable and could radically change the condition of the river in a matter of hours. The geology of the Relevant Segment magnified this problem, as freshets increased water velocity and turbulence in the narrow channels, while the bedrock became exposed quickly during dry periods. In times of low rainfall, there was significant exposed bedrock throughout the Relevant Segment, while storms led to very turbulent whitewater.

## 2. Marine Archaeology

Alcoa presented the testimony of marine archaeologist Dr. Mark Newell. Dr. Newell discussed the typical types of watercraft used for commercial navigation at statehood. The State presented no similar testimony. The Court finds Dr. Newell's testimony persuasive and relies on it to make the following findings of fact.

Pole boats or bateaus and flats were the primary means of commercial navigation in the Piedmont around the time of statehood. Pole boats required a channel of 36 to 58 inches deep to operate in steep, rocky rivers, and flats were wider vessels with shallower drafts that were

typically used in shallower waters. Pole boats and flats would have had difficulty navigating shallow, steep, swift-moving, rocky rivers.

### 3. History

The historical record of use for navigating the length of the Relevant Segment is minimal. Certain natural physical impediments, such as the Falls and Narrows, were considered absolute barriers to navigation. The only firsthand account of commercial navigation of the Relevant Segment was that of Richmond Pearson, who described a one-time journey down the Relevant Segment in a 1796 letter to the North Carolina Legislature. Three separate historical reports also imply that Pearson and his son used the Relevant Segment, excluding the Narrows, for commerce for roughly two generations as part of a business. Pearson's letter, however, described work performed on the river and its banks by a large crew of workers before the journey could be completed "with safety." It is unclear what kind of work had to be performed in order to make the Relevant Segment safe for navigation, but an addendum to the letter demonstrates that it required many people and man-hours. Moreover, even Pearson had to portage around the Narrows. The only other account of commercial navigation was Judge Spruce Macay's 1796 report, in which he noted that that "3 hands" carried 6 hogsheads of tobacco down a portion of the Relevant Segment. That portion, however, did not include the Falls or Narrows.

Records presented demonstrate that travel from areas around the Relevant Segment was by overland routes such as roads, ferries, and railroads. Lt. General Nathanael Greene, who commanded the Southern Continental Army during the Revolutionary War, was unable to navigate the Relevant Segment by boat, so he loaded his boats on wheels and shipped them overland, ultimately using them to ferry troops across the Yadkin in a retreat from the British. Greene then used the river as a shield because the British could not cross it. Despite the fact that

overland roads were primitive and dangerous, testimony established that settlers used these roads rather than the Relevant Segment to transport their goods by wagon to heads of navigation on other rivers such as Cheraw, South Carolina, Cross Creek, North Carolina, and Pinetree, South Carolina, and from there by boat to coastal port towns. A historical survey of the geography of the United States in 1795 corroborates this, as it described the Yadkin River as non-navigable, particularly at the Narrows. Even the State's own expert historian, Dr. Larry Tise, wrote and published a book which referred to the Relevant Segment of the Yadkin River as a barrier rather than a means of travel.

The record is replete with attempts to make the Relevant Segment navigable, with the first mention thereof in the 1785 survey calculating the expense of sinking a channel 18 inches deep and six or eight feet wide through the middle of the Relevant Segment. An 1818 survey was also conducted to determine what would be necessary to make the Yadkin navigable from Wilkesboro to below Cheraw, an area that includes the Relevant Segment. The survey identified many improvements and concluded that the Narrows needed more careful examination and a separate improvement plan. In the late 1800s, the U.S. Army Corps of Engineers tried to channel the riverbed. A survey of the river conducted by the Corps in 1879 concluded that it was obstructed by rock ledges, dams and shoals with a maximum depth of one foot in many places. The Corps decided to improve upon the river, but did not even aim to alter the riverbed in the majority of the Relevant Segment, finding that it would be cost-prohibitive. Even Judge Macay's report did not state that the Relevant Segment was being used for commerce (with the exception of the example discussed above), but primarily discussed the best avenues of the Relevant Segment to use for commerce, how to successfully navigate or circumnavigate certain shoals and falls, and what improvements were needed in order to better make the river navigable.

## CONCLUSIONS OF LAW

The Court previously ruled that the State, as the party raising the issue of navigability, bears the burden of proving that the Relevant Segment was “navigable in fact” at statehood. Under federal law, rivers “are navigable in fact when they are used, or are susceptible of being used, in their ordinary conditions, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water.” *PPL Montana v. Montana*, 132 S. Ct. 1215, 1228 (2012) (quoting *The Daniel Ball*, 77 U.S. 557, 563 (1871)). “In most cases, [portages defeat a finding of navigability] because they require transportation over land rather than over water.” *PPL Montana*, 132 S. Ct. at 1321. Courts analyze navigability “on a segment-by segment basis to assess whether the segment of the river under which the riverbed in dispute lies, is navigable or not.” *PPL Montana*, 132 S. Ct. at 1229. Here, the parties have stipulated that a single segment is at issue—the Relevant Segment. As the parties have agreed upon the perimeters of the Relevant Segment, the Court must look at whether the State has proven by a preponderance of the evidence that the Relevant Segment, in its entirety, was “navigable in fact” at statehood.

Given that the stipulated segment includes the Falls and Narrows, and that the State conceded both portions had to be portaged, the Court is compelled to conclude that the Relevant Segment, in its entirety, was not navigable in fact at statehood. Had the State conformed its claim to the proof presented to this Court, perhaps the outcome would have been different, but the question before the Court was whether the entire Relevant Segment, to which the parties stipulated, was navigable. It is clear that it was not.

The Relevant Segment’s geomorphology is probative as to its navigability. *See PPL Montana*, 132 S. Ct. at 1234. The State put on no evidence regarding the Relevant Segment’s

geomorphology. The evidence submitted by Alcoa demonstrated that the Relevant Segment—in particular the lower half—was characterized by ledges with steep drops, rapids, shoals, rocks, high turbulence and frequent, unpredictable low flows and floods. Vessels ordinarily used for commerce in the region at statehood, such as pole boats, would have had difficulty navigating the Relevant Segment, and particularly the Narrows and Falls, safely for purposes of trade given the unpredictable flows, falls, and rock shoals throughout. The geomorphology of the Relevant Segment in this case is similar to the facts presented in *PPL Montana*, where a 17-mile stretch with “distinct drops including five waterfalls and continuous rapids in between” defeated navigability. *PPL Montana*, 132 S. Ct. at 1231. Here, the named shoals and falls stretch roughly 25 miles down the lower half of the Relevant Segment and are characterized by the same obstacles cited by the Supreme Court in *PPL Montana*. The Court cannot conclude that the Relevant Segment was navigated or was susceptible to navigation for commerce given the lower half’s geomorphology.

Moreover, the historical evidence demonstrates that the Relevant Segment generally was not used for commerce in its natural condition. Richmond Pearson’s account of his journey down the Relevant Segment, which was the only firsthand account of any commercial navigation thereof, notes that he had a crew of many men improve upon the Relevant Segment in order for it to be navigated safely. A need for improvement counsels against a finding of navigability or susceptibility thereto in its natural state without further evidence of the type of improvements Pearson and his crew undertook. There are secondary accounts of Pearson and his son using the Relevant Segment for commerce for multiple years, however in all of these accounts, Pearson portaged around the Falls and Narrows.



The Court also finds persuasive the lack of mention in the Moravian records of navigation despite their close proximity to the Relevant Segment, the many historical surveys that described the Yadkin as non-navigable, and Lt. Colonel Greene's use of the Relevant Segment as a barrier rather than a means of travel during the Revolutionary War. Additionally, both state and federal governments spent a significant amount of time and money trying to improve upon the Yadkin River and make it navigable for commerce after statehood. While "poststatehood evidence . . . may show susceptibility of use at the time of statehood," the evidence in this case is that the Relevant Segment was never navigable for commerce nor susceptible thereto. *PPL Montana*, 132 S.Ct. at 1233. Were it navigable or susceptible to navigation in its natural state, there would be no need for significant improvement.


Most persuasive to the Court, however, is the fact that the State conceded that the Narrows and Falls were always portaged. Even if Pearson did use the Relevant Segment for navigation, there is no evidence to suggest that he navigated it in its entirety. In fact, all of the evidence suggests that the Relevant Segment was never, at any point in history, navigated for commerce in its entirety, nor could it have been. The Relevant Segment above and below the Narrows might very well have been navigable at statehood. The State certainly presented some historical evidence of navigability, and the geomorphology and historical evidence demonstrate that the upper part of the Relevant Segment was significantly more susceptible to navigation than the lower portion. Moreover, at trial, evidence of historical navigability bled into the area below the Narrows, which is not in the Relevant Segment. It appears that the Yadkin-Pee Dee is less treacherous the further east and south it travels. It seems likely, therefore that the segment of the Pee Dee on which Duke Energy operates the Blewett and Tillery hydroelectric plants is more susceptible to navigation than the Relevant Segment. The Court is not aware, however, of any

claim by the State to the title of the historical riverbed underlying those projects. Instead, the State stipulated that the Relevant Segment included the Narrows and Falls, which it conceded were never navigated for purposes of commerce. Given the state of the law, the evidence presented, and the stipulations entered into by the parties, the Court is constrained to conclude that the State has failed to meet its burden to prove by a preponderance of the evidence that the Relevant Segment was navigable in fact at statehood.

CONCLUSION

For the foregoing reasons, the Court finds that the State has failed to meet its burden to prove that the Relevant Segment, as stipulated to by the parties, was navigable for commerce at statehood.

SO ORDERED, this 6 day of May, 2015.

  
TERRENCE W. BOYLE  
UNITED STATES DISTRICT JUDGE